Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Neutralization

1. If you have a 5.0 L of 3.0 M HCl, what concentration does 2.4 liters of Ca(OH)2 have to have in order to exactly neutralize it?

In this problem, what is the acid? \_\_\_\_\_\_\_\_\_\_\_\_\_

In this problem, what is the base? \_\_\_\_\_\_\_\_\_\_\_\_\_

Show your work for solving this problem:

1. How much 4.2 M NaOH is needed to exactly neutralize 6.8 liters of 2.7 M H2SO4?

In this problem, what is the acid? \_\_\_\_\_\_\_\_\_\_\_\_\_

In this problem, what is the base? \_\_\_\_\_\_\_\_\_\_\_\_\_

Show your work for solving this problem:

1. How much of a 0.25 M acid solution is needed to neutralize 4.5 liters of a 1.9 M solution of LiOH?

In this problem, what is the acid? \_\_\_\_\_\_\_\_\_\_\_\_\_

In this problem, what is the base? \_\_\_\_\_\_\_\_\_\_\_\_\_

Show your work for solving this problem:

1. If you have 8.5 liters of a 4.1 M solution of Al(OH)3, what concentration does 3.9 liters of H3PO4 have to have in order to neutralize it?

In this problem, what is the acid? \_\_\_\_\_\_\_\_\_\_\_\_\_

In this problem, what is the base? \_\_\_\_\_\_\_\_\_\_\_\_\_

Show your work for solving this problem:

1. In each of these problems a neutralization reaction took place because a strong acid and a strong base were combined in just the right proportions. What are the general products of every neutralization reaction?

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1. Every time you combine an acid and base will it always end up with a pH of 7? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explain your answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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7.) What is a titration used for in chemistry? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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In the solutions unit you learned that molarity is a way to express concentration. The formula for molarity is:

Molarity = moles of solute/liters of solution

Use this information and the titration formula to answer the remaining questions on this page:

What is the concentration of a solution that has 4.7 moles of an acid in 2.7 liters of water?

Now, if 6.5 liters of the above acid are used, what concentration of 5.5 liters of a base is needed? (Use the titration formula used on the front side of the sheet)

What is the concentration of a solution that has 1.9 moles of an acid in 0.63 liters of water?

Now, if 7.4 liters of the above acid are used, what volume of a 2.5 M solution of a base is needed? (Use the titration formula used on the front side of the sheet)